
Achievement of Students

The Context

It is important to provide all Californians access to high-quality education, but it is equally important that their education equip them with the ability to manage change and to think both critically and independently. They must know how to locate information quickly, weigh and evaluate information for bias and accuracy, and synthesize and apply that information to solve problems. These 21st century skills build on and absolutely require a strong foundation of traditional reading, writing, and mathematical abilities. They represent the basic building blocks of learning and will be a major asset for successful entry into tomorrow's workforce.

While it is important to equip students with the knowledge and skills that will prepare them for success in California's workforce and postsecondary education, it is equally important that students become well-rounded individuals with a sense of self worth and of the importance of civic and community involvement. These qualities are essential to a democratic society. They equip individuals with the ability to accept opinions that are different from their own without devaluing their own opinions. They instill a set of values that motivate a person to engage with the larger society, to try to make a positive difference, and to improve the life conditions of others as well as themselves.

California's adoption of academic content standards is an essential step in defining the knowledge we expect public schools to impart to all students, but it falls short of capturing the skills involved in learning how to learn. Teaching a discrete set of skills is an appropriate aim for education institutions, but if a child is to learn a skill, s/he must either enjoy practicing the skill or understand the usefulness of that skill. That is, students must see the connection between acquiring a skill and getting something else they want, if they are to develop the disposition to learn it. But most skills, like reading and doing long division, are usually embedded in more complex activities. Exercising those skills usually does not resemble the way students learn them, and if learners are to understand the value of the skills, they have to see how they are embedded in broader activities that they enjoy or at least find useful. Once students develop a disposition for learning something, it stays with them a long time, unlike simple memorization of facts. Unfortunately, too many education institutions get caught up in the process of transmitting a large body of common knowledge to a diverse group of students who promptly forget what they have been taught after they have been tested on it.³¹

This Master Plan for Education seeks to move California beyond the simple transmission of knowledge, by emphasizing efforts to develop a disposition for learning and achievement among all of California's learners. Employers can help in this regard by placing an emphasis on student

³¹ See Edward A. Krug, *The Shaping of the American High School, Vol. 1, 1880-1920, and Vol. II, 1920-1941*, Madison: University of Wisconsin Press, (1969, 1972)

achievement. Currently, few businesses ask for high school transcripts in deciding whether to hire young people, and, therefore, there is no employment incentive for high school students to be disposed to attain high achievement levels. Such incentives are more evident for college graduates, who receive higher entry salaries and have lifetime earnings that greatly exceed those of their counterparts who terminate their educational careers at the high school level.

Traditional approaches to teaching and learning have been based on a variety of research assumptions and findings that have subsequently proved to be inaccurate. Some of those incorrect assumptions include that the brain's development is entirely dependent on the genes a child is born with, that early childhood experiences have a limited impact on a child's later development, that brain development is fundamentally a linear process, and that a toddler's brain is less active than that of a college student. Recent research on how the brain develops indicates that children are born 'wired-to-learn' and that development of the brain is a complex interaction between genetic inheritance and early childhood experiences. A child's experiences from birth to age three not only shape the context for future learning, but also have a decisive impact on the architecture of the brain and on the nature and extent of adult capacities.³² Research also documents that brain development is an episodic process; there are particularly prime times for children to acquire different kinds of knowledge and skills.

Building a solid foundation for learning requires focused attention to developing the social, emotional, cognitive, and physical competencies of infants and toddlers. Each child must develop satisfying social interactions with other children and adults, since that experience builds the capacity to engage in true cooperation and sharing relationships. Research indicates that young children have the capacity during their preschool years to begin developing the skill of symbolic representation that, in combination with improved memory, helps young learners develop more logical thinking, increased language skills, and the ability to categorize objects by attributes.³³ Learning theory reinforces the importance of children's developing the ability to express ideas and feelings through symbolic representation, noting that skill's association with development of mathematics learning and significant gains in knowledge and cognitive development.³⁴ Providing learners with opportunities to engage in creative activities such as dramatic play, or manipulation of objects in their environment like

“Children begin their lives with endless possibilities, only to find doors closed and opportunities limited. When they start school, they experience overcrowded classrooms and antiquated theories, and they enter a disjointed system that is ill-equipped to meet the needs of the new century.”

-- Robert H. McCabe, 2001
*League for Innovation in
Community College*

³² Shore, R., *Rethinking the Brain: New Insights into Early Development*, New York: Families and Work Institute, (1997).

³³ Wadsworth B., *Piaget's Theory of Cognitive and Affective Development*, White Plains, N.Y.: Longman Publishers, (1996).

³⁴ Armistead. M., "The Foundations of Multiple Intelligences," in *Multiple Intelligence*, Alexandria, VA.: Association for Supervision and Curriculum Development, (1994)

blocks, dolls, and clay, or the study of nature by planting seeds and monitoring their growth into plants is a valuable teaching strategy to promote the cognitive development of students.

Teaching and learning should never be viewed as independent functions within educational settings. Qualified teachers and engaged learners are the two essential components of any successful education enterprise. The Beginning Teacher Support and Assistance (BTSA) program recognizes the importance of support for new teachers, assigning experienced teachers to guide their novice peers into the teaching profession by providing advice and assistance on instructional strategies and helping them navigate the school environment. The Peer Assessment and Review (PAR) program seeks to further enhance the professional growth of novice teachers by having their more experienced peers evaluate their teaching effectiveness. Together, BTSA and PAR serve to reduce the variation in teaching effectiveness between more and less experienced teachers. The body of expertise that teachers possess about the strategies that are most effective in promoting successful achievement of diverse groups of students should also be actively engaged by administrators and school board members as they develop plans for improving student achievement within their schools and districts. Teachers' knowledge of instructional materials, assessment instruments, the strengths and weaknesses of students, and the role of parental support constitutes valuable input for strategic planning that focuses on improving students' achievement.

Though much of the research on brain development and learning focuses on infants and toddlers, the basic findings are applicable to learners of all ages. It is important that teachers and education institutions focus on development of the whole person, including development of social, emotional, physical, intellectual, and cognitive skills. Positive relationships and interactions with adults and advanced learners can be extremely influential in promoting learning among students. Because every learner brings a unique combination of personal attributes, childhood experiences, and styles of learning, it is important for education institutions to not limit their evaluation of intellectual potential to assessments of language and mathematical skills. Such a focus is too narrow and fails to recognize the multiple strengths that each learner brings to the teaching and learning process. A focus on student learning, therefore, requires that multiple strategies be integrated into the curriculum to promote a wider array of opportunities to demonstrate learning, and that those strategies be developmentally appropriate.

The exact components of education that promote high achievement are not always what many people think they are. Education providers, parents, and elected officials alike can benefit by distancing themselves from several myths associated with undergraduate education in America.³⁵ Several of these myths, which are equally applicable to all levels of education are summarized below:

Myth 1 – Institutional prestige and reputation reflect educational quality

Most people believe that, for any given student, going to an institution with all (or most) of the conventionally accepted earmarks of 'quality' will lead to greater learning and development. The fact is that it probably won't. The traditional earmarks of quality include educational

³⁵ Patrick T. Terenezini and Ernest T. Pascarella, "Living With Myths: Undergraduate Education in America, *Change Magazine*, January/February, (1994)

expenditures per student, student/faculty ratios, faculty salaries, percentage of faculty with the highest degree in their field, faculty research productivity, size of library, admissions selectivity, and prestige ranking. This myth ignores the kinds of students that enroll in those institutions in the first place. Most schools that *graduate* high-performing students also *admit* high performing students. These indicators of quality say more about institutional advantage than they do about what institutions do with the resources available to them to promote student achievement.

Myth 2 – Traditional methods of instruction provide proven, effective ways of teaching undergraduate students

Lecturing is the traditional method of undergraduate instruction in most institutions. Research evidence indicates that the lecture/discussion approach is not ineffective but it is not as effective as other, far less frequently used approaches. These more effective approaches emphasize small, modularized units of content, student mastery of one unit before moving to the next, immediate and frequent feedback to students on their progress, and active student involvement in the learning process. These individualized, collaborative approaches to teaching are more effective because they respond to differences in students' levels of preparation, learning styles, and rates of learning.

Myth 3 – Faculty members influence student learning only in the classroom

A number of studies demonstrate that faculty exert much influence in their out-of-class contacts with students. 'Instruction,' therefore, should be interpreted more broadly to include the important teaching that faculty do both inside and outside their classrooms. Student informal contact with faculty is positively linked with a variety of outcomes, including perceptions of intellectual growth during college, increases in intellectual orientation and curiosity, growth in autonomy and independence, increases in interpersonal skills, gains in maturity and personal development, educational aspirations, persistence, educational attainment, and women's interest in male-dominated career fields.

California Today

In the previous section on Access, we highlighted the demographic challenges of numbers and diversity in California as well as the impact that they have had on our ability to attract and retain qualified teachers in public schools. Approximately half of our public schools do not have problems with attracting qualified teachers. The balance have varying levels of difficulty, with the most challenged schools, located largely in low-income communities, facing a crisis in their ability to attract and retain qualified teachers. In some of these schools, nearly half of the teachers of record are not fully credentialed and, therefore, are particularly challenged to provide high-quality educational experiences for the students enrolled in those schools. The educational consequences of these conditions are evident in the available indicators of student achievement.

Measures of Achievement – elementary and middle school

In the elementary and middle-school grades, measures of student achievement are primarily restricted to National Assessment of Educational Progress (NAEP) scores and Stanford Achievement Test (SAT-9) scores. As noted in the Access portion of this report, NAEP scores reveal the following:

- Barely half of California 4th and 8th graders (52 percent in both cases) demonstrated even basic competence in mathematics as measured by the 2000 administration of NAEP, often referred to as the nation's report card. Only 15 percent of 4th graders and 18 percent of 8th graders demonstrated proficiency in mathematics that year.
- 1998 NAEP scores for reading, the most recent measures available, reveal that 48 percent of 4th graders and 64 percent of 8th graders were basic readers, while fewer than one quarter of 4th and 8th graders (24 percent and 23 percent, respectively) were proficient or advanced readers.
- Fewer than half of California's 4th and 8th graders demonstrated a basic understanding of science on the 2000 administration of NAEP, ranking California's students last among the 40 states that participated. Only 14 percent of 4th graders and 15 percent of 8th graders demonstrated proficiency in science.

SAT-9 scores provide the following profile of student achievement in California elementary and middle schools:

- Forty-seven percent of 4th grade students earned SAT-9 reading scores at or above the 50th percentile in 2001, a seven-point increase over scores earned by 4th graders in 1998. Fifty percent of 8th grade students earned reading scores at or above the 50th percentile, an increase of four points over those of their 1998 8th grade counterparts and a nine-point gain over the reading scores earned by this same cohort when they took the SAT-9 test as 5th graders in 1998.
- Fifty-four percent of 4th graders earned math scores in 2001 at or above the 50th percentile, a 15-point increase over their 1998 4th grade counterparts. Only 49 percent of 8th graders earned math scores at or above the 50th percentile in 2001. This measurement represents a seven-point increase over scores earned by 8th grade students in 1998 and an eight-point increase over the math scores earned by this group of students when they took the test as 5th graders in 1998.
- In the Language test, 54 percent of 4th graders and 52 percent of 8th grade students earned scores at or above the 50th percentile. These scores represent a nine- and five-point increase, respectively, over the scores earned by their counterparts in 1998.
- Fewer than half of 4th grade students (46 percent) and fewer than two of five (38 percent) 8th grade students earned SAT-9 spelling scores at or above the 50th percentile. Even so, these scores are 11 and five points, respectively, higher than the spelling scores earned by their 1998 counterparts.

An analysis of SAT-9 reading scores attained by students with different background characteristics revealed substantial differences in achievement. There is nearly a 20 percentage-point gap between the reading achievement of 4th grade students who are economically

disadvantaged (28 percent) and those who are not economically disadvantaged (47 percent), and between economically disadvantaged and not disadvantaged 8th grade students – 29 percent and 50 percent of them, respectively, attaining scores at or above the 50th percentile. A similar disparity in achievement, as revealed by SAT-9 reading scores, is evident among 4th and 8th grade students who are fluent English speakers, compared to their English-learning peers, except that the gap grows to 34 percentage points for 4th graders and 41 percentage points for 8th grade students.

California's testing program also incorporated a California Standards test in English Language Arts in 2001. This test is aligned with the academic content standards that guide what is taught in public school classrooms, thus providing a more reliable measure of how well students are mastering the content they are expected to be taught. Student scores were rated in five levels: far below basic, below basic, basic, proficient, and advanced. Only 33 percent of 4th grade students and 32 percent of 8th graders were rated proficient or advanced in English Language arts.

Measures of Achievement – high school

Measures of student achievement at the high school level are a bit more extensive than at earlier grade levels. They include SAT-9 scores, completion of the California State University/University of California 'A-G' pattern of college preparatory courses, graduation/drop-out rates, SAT-1/ACT test scores (among the college-going population of high school graduates), California State University and University of California eligibility rates, and remediation rates of high school graduates enrolling in California State University and University of California campuses. These data are summarized as follows:

SAT-9 test results for 10th and 11th grade students are depressing when compared to those of their elementary and middle school counterparts.

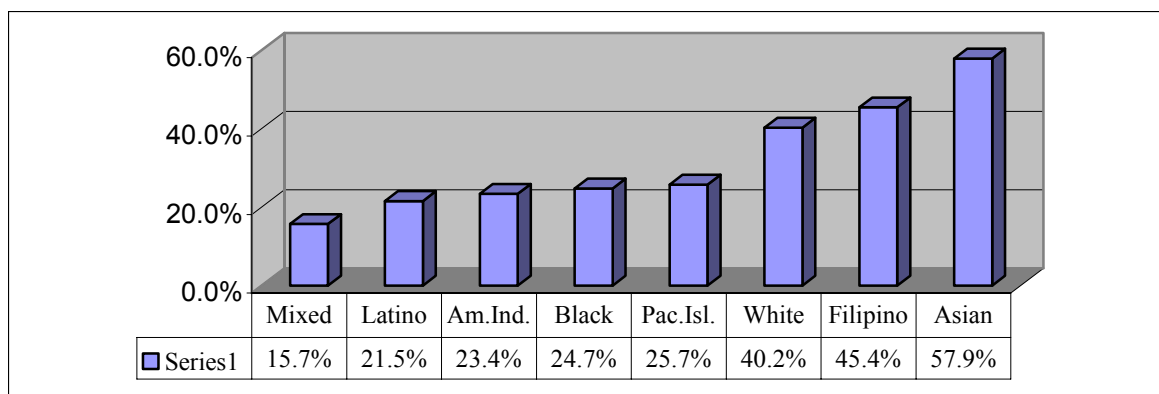
- Just over one-third of 10th and 11th grade students earned 2001 reading scores at or above the 50th percentile (35 percent and 37 percent, respectively), a 1-2 point gain over scores earned by their 1998 counterparts, but a 9-10 point decrease from the scores they earned when their respective cohort group took the test in 1998.
- Less than half of 10th and 11th grade students earned math scores at or above the 50th percentile in 2001 (45 percent and 46 percent, respectively). Similar achievement was evident in language scores earned by 10th and 11th grade students; 42 percent of 10th graders and 49 percent of 11th graders earned scores at or above the 50th percentile.
- Social science scores earned by 10th graders in 2001 were markedly better, with 59 percent of them at or above the 50th percentile. However, only 38 percent of 11th grade students earned scores that reached that mark.
- On the English Language Arts standards-based test, only 31 percent of 10th grade students and 29 percent of 11th grade students earned scores rating them as proficient or advanced.

California has historically attained high graduation rates in comparison to other states, but in 1995 the state ranked at the bottom nationally. While the national average of 18-24 year-olds with a high school diploma was close to 85.3 percent, California averaged only 78.9 percent, just

below Texas.³⁶ There is considerable variation in this average among different income and racial/ethnic groups. For instance, Latino students are the fastest growing student group in the state's education system. They also have one of the highest school drop-out rates of all racial/ethnic groups. Only 56.9 percent of Latino students who entered high school in 1996 graduated four years later (Black students had a similar graduation rate of only 57.8 percent). In contrast, Asian and White students graduated at rates of 86.3 percent and 77.6 percent, respectively.³⁷

In Figure 2, following, the percentage of public high school graduates completing the college preparatory pattern of courses (A-G) prescribed by the University of California and California State University systems that qualifies them for admissions consideration is summarized. It provides further evidence that high school student achievement is uneven.

Figure 2
Public High School Graduates Completing the required courses for CSU/UC, 1999-2000



Source: California Research Bureau, California State Library, using the 1999-2000 CBEDS File

California's 1960 *Master Plan for Higher Education* restricted the pools of high school graduates from which the California State University and University of California systems could select their freshman students to the top one-third and top one-eighth, respectively. Each system was charged with defining how its pool would be determined. They each have developed eligibility indices that incorporate high school curricular pattern, grade-point average in college preparatory courses, and SAT/ACT scores. Table 5, following, reflects the pattern of eligibility that is predictable from the student achievement data cited previously. It reflects a persistent pattern of White graduates' attaining California State University and University of California eligibility at roughly twice the rate of their Black and Latino counterparts, and Asian students' attaining eligibility at about twice the rate of their White peers.

³⁶ U.S. Department of Education, *Digest of Education Statistics*, (1999).

³⁷ California State Department of Education, Demographic Reports, "Graduation Rates by Ethnic Group," California Education Data System, (December 2001).

Table 5
Percent of Public High School Graduates Meeting Eligibility Requirements of the
California State University and University of California – Selected Years

	CSU 1986	CSU 1990	CSU 1996	UC 1986	UC 1990	UC 1996
Black	10.8%	18.6%	12.2%	2.3%	5.1%	2.8%
Latino	13.3%	17.3%	13.4%	3.1%	3.9%	3.8%
White	31.6%	38.2%	36.3%	10.1%	12.7%	12.7%
Asian	50.0%	61.5%	54.4%	24.9%	32.2%	30.0%
All Graduates	27.5%	34.6%	29.6%	9.1%	12.3%	11.1%
<i>Source: California Postsecondary Education Commission, Eligibility Studies</i>						

A number of factors contribute to this disparity in achievement by public high school graduates. Among them are differences in opportunity to learn, based on schools attended and the quality of teachers to which they were exposed; differential access to rigorous courses that would make them competitive for admissions, such as Advanced Placement and honors courses; socio-economic factors; and test anxiety. What is clear, however, is that not all children are receiving the quality of education to which they are entitled.

Measures of Achievement - postsecondary education

Inequality in educational experience is also evident among those high school graduates who distinguish themselves by being among the top one-third of high school graduates in the state and gaining admission to a California State University campus. Close to half of all California State University freshman students are assessed to lack college-level proficiency in math or English or both.³⁸ This fact places a tremendous burden on both California State University faculty and freshman students and has prompted the California State University Board of Trustees to adopt a goal of reducing the demand for remedial instruction among entering freshmen to no more than 10 percent by academic year 2007-08. Even the University of California, which selects its freshmen from the top one-eighth of all public high school graduates, has determined that nearly 35 percent of the students in its annual freshman classes are in need of remedial instruction in English; it does not assess the math skills of entering students.

Nearly three-quarters of the high school graduates of color who continue their education beyond high school choose a local community college as the point of initial enrollment. However, the community colleges, which serve a student body that most closely reflects the diversity of California, struggle with persistent indications of achievement gaps in the success rates of White and Asian students compared with those of other ethnic groups, and between those of immigrant and non-immigrant students, in key areas.³⁹ Transfer rates and the rates of earning associate's degrees are lowest for Black, Latino, and Native American students – with the lowest rates

³⁸ California State University, Board of Trustees Agenda Item, (January 2001).

³⁹ California Tomorrow, IBID.

evident for part-time students from these groups. Latino immigrant students have the lowest transfer rates of any group, immigrant or non-immigrant, irrespective of whether they attend part- or full-time.

While enrollment of high school graduates in the California State University and University of California systems is relatively healthy, student persistence and degree attainment are not. Data from the U.S. Department of Education show that the number of bachelor's degrees awarded by California public colleges and universities per 1,000 students enrolled in their undergraduate programs is only 68.8, placing California nearly last among the 50 states.⁴⁰ In addition, California lags substantially in its production of Bachelor of Science degree recipients, despite the high demand for employees in technology fields in the state. A recent study by the California Commission on Science and Technology highlights the major problems in California's schools, colleges, and universities with regard to the promotion of science education and the development of badly needed talent for this important sector of the state's economy.⁴¹ Moreover, data maintained by the California Postsecondary Education Commission indicate that independent colleges and universities in California annually produce about one-quarter of bachelor's degrees and nearly half of all master's and doctorate degrees awarded to students enrolled in California colleges and universities of all types.

There are a number of possible explanations for these measures of achievement. It is not critical that they be listed here. What is important is that the measures highlight the unevenness of student achievement at all levels of California's education system and underscore the importance of directing far more attention to more effective use of our educational resources to reduce and eventually eliminate these disparities. As California makes progress in guaranteeing that all students have access to the education components that are most essential to high-quality teaching and learning environments, we must also be vigilant to avoid the mistakes of the past. We must make sure that these resources are being used effectively by our educational institutions to enable every student to meet the high expectations we have set for them.

As it moves into the 21st century, California must also confront the fact that a factory-like model established for schools in the 19th century is no longer working. Today's public high schools are the legacy of an era when economies of scale and prevailing educational philosophies suggested that bigger was better. Evidence continues to mount, however, that breaking up large, anonymous high schools into small learning communities, combined with other reforms, can dramatically improve outcomes for students.

Research indicates that students in small learning environments feel less alienated, more nurtured, and more connected to caring adults. Students in these programs have overall better attendance records, lower dropout rates, fewer discipline problems, lower use of alcohol and drugs, increased self esteem, and improved high school completion rates. Small learning communities have had a particularly positive effect on learning in schools with large concentrations of poor and minority students – a major goal of this Master plan. An array of

⁴⁰ John A. Douglas, unpublished paper "A Reflection and Prospectus on California Higher Education: The Beginning of a New History," prepared for the Pat Brown Institute, (February 2002).

⁴¹ California Council on Science and Technology, *Critical Path Analysis of California's Science and Technology Education System*, January 2002).

models for small learning communities currently exist in California. They include career pathway academies, California Partnership Academies, ‘school-within-a-school’ magnets, and ninth- or tenth-grade ‘houses’ or clusters, which bond transitioning students to high schools.

The Vision

Student achievement is a central tenet of this Master Plan for Education. We envision an education system in which all students enrolled in public schools, colleges, or universities in this state will have educational experiences that provide them with a measurable set of knowledge and skills that equips them for success at every level of their educational journey. That journey would begin at birth with parents providing the nourishment, health care, and stimulating experiences that foster a disposition for learning in children. The State would broker federal, state, and local resources to ensure that those families needing assistance to help their children become ready learners would be able to find such assistance in their local communities, perhaps at their local school sites, where they could establish early relationships with education providers.

We envision California’s schools, colleges, and universities staffed by qualified teachers, administrators, and other professional staff who would view themselves more as advanced learners than expert dispensers of knowledge and skills. They would clearly communicate the learning expectations they would have for the students who come to them, determine those students’ respective strengths and weaknesses, create formal and/or informal teaching and learning plans to help those students meet their learning expectations, and would convey an enthusiasm for teaching and learning. Informed by a clear set of state standards for teaching, learning, and facilities, educational providers would collaborate with each other continuously to ensure that curriculum were aligned across grade levels and sectors and that a variety of assessments were developed to measure both teaching and learning outcomes. These assessments would be used strategically to determine how well students were mastering the course content, and students would be provided timely feedback on their progress. When appropriate, students who could benefit from it would be provided supplemental learning support, including accommodations for physical or cognitive disabilities, to help them meet learning expectations, or would be provided opportunities for advanced learning. A shared objective of every public school would be to dramatically reduce the number of students who drop out of school prior to earning a high school diploma.

Teachers and faculty also would reflect on the impact of their efforts to instill a disposition for learning in all the students with whom they work – a critical factor in retaining students – and on mastery by their students of the academic content and skills they teach. They would share their successes and failures with colleagues in an effort to learn of more effective, or at least more promising, strategies that could be tried to achieve more positive outcomes among the students with whom they have been least effective. They would participate in customized professional development activities, to help them learn new skills to improve their effectiveness with diverse students, remain current in the range of career and technical applications of the knowledge and skills they teach, and/or develop comfort with the effective use of technology to better achieve their instructional objectives.

School and campus administrators would continuously monitor the condition and maintenance of facilities to ensure that they provide a positive teaching and learning environment. They would communicate regularly with teachers/faculty to determine their needs and would strive to ensure that teachers have the tools they need to continue being effective with every student. They would regularly review data on student achievement to identify teaching and learning trends that might warrant more attention, and institutional performance data to determine if resources were being used most effectively and efficiently. They would actively engage with representatives of community groups and agencies both to attract fiscal and political support for their institutions and to build broader ‘learning communities’ that reinforce the learning objectives of the institutions when students return to their homes and neighborhoods. This support would be channeled into supplemental service-learning opportunities that teachers could use to build a sense of civic and community involvement and to reinforce learning objectives.

Required state testing would serve two purposes. First, it would provide an aggregate picture to state agencies as one indicator of how well public education institutions were performing in meeting California’s standards for teaching and learning with the resources made available to them. Testing data would be balanced by an institutional profile of the teaching and learning opportunities within which educational providers work and students learn. For these test data to be an effective indicator, the test would also be aligned with the academic content standards that guide what is taught in every public school. Second, the National Assessment of Educational Progress (NAEP) would be used in conjunction with California’s standards-based test to permit California to compare the achievement of its students with that of students in other states.

We envision California’s postsecondary education institutions’ developing an assessment instrument that would provide an indicator of how well public colleges and universities were doing in helping postsecondary education students master the common body of knowledge represented by the general education requirements that all undergraduate students are expected to complete. As part of their regular program review process, faculty within public colleges and universities would begin to develop standards for knowledge and skills that students majoring in specific academic disciplines would be expected to master, and would routinely assess achievement of these expectations. Our public colleges and universities would continuously review data on student achievement in an effort to identify the types of learning and social support that might result in greater success and persistence through certificate, credential, or degree completion by each enrolled student. Academic strengths and weaknesses of students revealed through this data analysis would be used to focus continuous faculty dialogue with high school teachers and, in the case of our two public university systems, with their community college counterparts.

Public colleges and universities would revise their reward structures to recognize faculty who were particularly effective in promoting student achievement and would actively encourage them to serve as mentors to newly hired faculty. Differentiation of function among faculty would be an accepted practice within public colleges and universities. Faculty who were particularly effective researchers would collaborate with colleagues who were particularly effective teachers, in a continuous effort to infuse new knowledge into the curriculum to which students would be exposed. Faculty who were particularly good at developing learning modules and course curriculum would routinely collaborate with technologists to develop effective ways to promote

learning for every student, whether the student is physically present in a classroom or participating in learning activities at a different place and time. Faculty would blend their collective strengths and skills to provide professional development activities for all faculty that would enable each of them to improve their abilities to be effective teachers.

In short, we envision California's education system's becoming one of more- and less-advanced learners, with more-advanced learners (our current teaching, administrative, and professional personnel) engaged in continuous reflection on the teaching-learning process, in an effort to improve educational outcomes for all learners. Parents would be deliberately engaged as primarily responsible for preparing their children to become ready learners prior to the age of compulsory school attendance. State control agencies would review data on institutional and student performance to identify areas of need for improved learning opportunities for all children, particularly in schools serving communities with high concentrations of low-income families, and would seek to broker resources to ensure that needed services were provided and used effectively.

What is Needed

A focus on student achievement also requires that there be a clear statement of expectations, regular measurement of the extent to which these expectations are being achieved, and a database sufficient to preserve data on student achievement over time and inform judgments of the extent to which changes are needed. Different types of data are required for different purposes, and it is important to keep these distinctions clear. Data needed to improve teaching and learning are different from data needed to evaluate institutional performance or the impact of education policies. The State should collect only those data that are appropriate for the responsibility it has retained for itself in implementing this Master Plan. Not everything that may be important to the successful implementation of this Master Plan and to improving the achievement of every student is easily measured. Nor is everything that can be measured important.

Assessment of Student Learning Needs and Achievement

Support should be available to meet student learning needs at every level of learning. Supplemental support programs, at every level from pre-kindergarten through postsecondary education, must focus on having *all* students 'learn the first time' rather than having to relearn or 'catch up' at developmentally inappropriate times. Well-constructed and appropriately used assessment can be an effective way to ensure that students receive the learning support they need when it is most useful and before they fall into a cycle of failure. There are several critical transition points at which teachers and faculty should be most attentive to students' needs as they progress through California's education system. These include the following:

Pre-K to grades 1-3. Children begin their lives with endless possibilities. They enter school enthusiastic, motivated, and hoping to succeed. However, many students, especially in low-income neighborhoods, enter a disjointed education system that is ill-equipped to meet their needs. Students who struggle in the first grade quickly become unmotivated and do not participate in the very activities they need most. These children begin a pattern of academic

frustration that usually continues throughout their education. After the 3rd grade, a child's academic achievement level appears to remain remarkably stable throughout the remaining school years. If students are not at grade level in reading and math by the 3rd grade, that status continues throughout their education.

From the 3rd to the 4th grade and throughout the upper elementary years. Educators have established a benchmark that students should read at grade level by the time they reach 4th grade. The National Assessment of Educational Progress, however, reports that less than one-third of the nation's 4th graders are proficient in reading. In California, fewer than one-quarter of 4th graders are proficient in reading. When students fall behind in the first three grades, schools often then hold them back. In some inner city schools, as many as one-fourth of the primary children repeat a grade. Unfortunately, research on grade retention consistently finds that students' attitudes often worsen and their skills do not improve when they are retained, particularly when there are no improvements in the teaching and learning strategies used. Intentionally linking learning to a student's current and future life through enrichment activities, such as beginning career exploration, can add greater relevance and understanding about the purpose of schooling in these early settings.

Into and through middle school to high school. Middle school organization and curriculum varies from school district to school district, ranging from departmentalized course offerings to integrated core curricula. Whatever structure a district selects, it must support students to learn the material and skills contained in the State's academic standards; and it must avoid separating students into different curricular paths with different expectations for learning – an outcome that becomes increasingly likely for each student with the transition from a single to multiple teachers. All middle schools should strive to help students take charge of their own learning, become independent learners and thinkers (qualities critical to their future academic and career success), and develop the confidence that they will graduate from high school qualified for transition to a career or postsecondary education. This confidence must be realistically based on students' clear understanding of the necessary academic preparation for high school graduation and postsecondary education, financial requirements of postsecondary education and assistance available to meet those requirements, career options, and other elements necessary to ensure their success in high school no matter what post-high school option they choose.

High school graduation and beyond. It is common to see students as having two options upon graduating from high school: graduates will go *either* to work *or* to college. Although it is true most students eventually 'wind up' in one of these places, it is inaccurate to say that many have a genuine choice. In our PreK-12 education system, the choice of immediately joining the workforce or attending college is usually made far before high school graduation, typically via course choices made by students with incomplete information. To discourage students from foreclosing postsecondary education options, California's education system must change the common perception that less is expected of students bound for the workplace, community college, or proprietary schools than of those who intend to go to a baccalaureate degree-granting college or university. California high schools, adult and alternative education schools, regional occupation centers and programs, and postsecondary education must all be understood as components of one education system. Integrated instruction, which emphasizes application of

knowledge within contemporary contexts, would complement a systemic school-to-career strategy and may increase student motivation to learn and remain in school.

To ensure that students' needs are assessed properly and that students are provided learning support in a timely manner, we offer the following recommendations:

Recommendation 20

To target learning support adequately and complement state testing, the State should establish as standard practice the use of classroom-based diagnostic assessments that specifically link to interventions aimed at enabling students to meet California's academic standards and postsecondary education entrance and placement requirements.

The State should continue the use of criterion-referenced tests that enable determination of how well students as a whole are mastering the academic content required to be taught in compliance with state standards and with performance measures that enable us to compare the achievement of California's students with the achievement of students in other states.

Appropriate learning support cannot be provided effectively in a system that relies solely on norm-referenced tests to determine who needs support and the type of support needed, since such measures provide little substantive information about students' academic strengths and gaps. Neither can support be provided effectively if the system delays support until just before or after a student fails a 'high stakes' assessment that carries negative consequences for the student. Diagnostic assessments allow educators to pinpoint the specific assistance students require, and they point to interventions that best respond to particular learning needs. *Interventions must not be of the type traditionally used in remedial programs – for example, stand-alone programs focused on basic skills.* Rather, they should consist of additional time and instructional support in a curriculum that is matched to course standards and postsecondary education preparatory courses.

Measurement matters. Organizations can manage only what they frequently measure, and student learning is of such importance that it must be better managed than available data indicate has been the case to date. Learning must not be left to chance, nor can instructional strategies remain inconsistent, unfocused, or focused on the wrong things. Unfortunately, emphasis on high stakes tests that aim to invoke greater accountability in education has overshadowed the importance of classroom assessments for monitoring student achievement and adjust instructional strategies. When clear content standards exist, classroom assessments are far more likely to be aligned with the curriculum being taught than are other standardized tests and, therefore, more useful as a tool for monitoring student progress and effectiveness of instruction - the essence of the education process.

There are inherent dangers in making high stakes judgments about students on the basis of a single test. Because assessment should primarily inform teachers and faculty of student progress in meeting learning expectations so that they may provide the learning support needed as soon as

possible to promote the achievement of all students, as well as being one of multiple measures that inform decisions about student progress, we further recommend:

Recommendation 20.1 – The State should continue the process of requiring state-supported preschool providers and kindergartens to develop an individualized learning plan for each child, for assessment of the child’s developmental growth.

Recommendation 20.2 - The State should charge local districts with developing their own assessment systems/policies for providing information about and guiding instruction of individual students.

Recommendation 20.3 – The State should encourage schools and postsecondary institutions to develop end-of-course assessments that can serve the dual purposes of measuring what a student has mastered at each grade/course level and the student’s readiness to successfully undertake learning at the next grade/course level. A key focus should be the readiness of high school seniors to undertake postsecondary education coursework without need for remediation. In particular, assessments of 11th grade performance should be aligned, if not integrated, with entrance or placement examinations of the State’s college and university systems.

Recommendation 20.4 – Schools, colleges, and universities should use authentic assessments that measure students’ school/campus accomplishments, including work samples and portfolio entries, in relevant academic subjects, and that would allow students to progress through a variety of coordinated delivery systems.

Recommendation 21

California’s colleges and universities should work collaboratively to develop a means of assessing the learning of students enrolled in public postsecondary education.

Californians are no less interested in whether public education is working for all students when the focus shifts from public schools to the public colleges and universities. Unlike the K-12 schools, however, postsecondary education has no commonly accepted academic content or skills that should be taught to all its students. Yet, there is, or at least should be, a value added to the lives of college-educated individuals beyond the economic benefits of higher lifetime earnings. All reputable colleges and universities require undergraduate students to complete general education requirements that can serve as a foundation for a consensus on a common body of knowledge and skills that should be taught to every undergraduate student. Based on existing requirements, it seems reasonable that this array of skills and knowledge would include proficiency in oral and written communication, quantitative reasoning, critical thinking and problem solving, interpersonal skills, and democratic principles. Skills in the application of technology should be added to this list.

Postsecondary education institutions may choose to go beyond the scope of this recommendation, and the committee would encourage them to do so, to develop measures of competencies specific to the multiple majors from among which students can choose to specialize. Various segments of California's economy are dependent on postsecondary education institutions' doing an effective and efficient job of producing prospective employees with the skills needed by industry, particularly in our science- and technology dominated-fields. Specialized knowledge beyond the general education requirements every undergraduate student must complete to earn a baccalaureate degree is necessary for some types of employment, including our teaching profession, and is an appropriate focus for departmental faculty as they modify curricular requirements over time.

There is complexity and challenge in this recommendation, particularly given the differences in the functions that have been assigned to our three public sectors of postsecondary education and differences in the requirements of particular majors and program accrediting bodies. There are also several additional policy questions to be addressed in considering the development of a system for assessment of student learning at the postsecondary education level. They include the following:

- Should each sector be permitted or encouraged to develop assessments aligned to its particular mission and student body, or should the State encourage use of a common assessment instrument for all sectors?
- Can any test or assessment instrument serve the dual purpose of informing continuous improvement in teaching and learning as well as state accountability? Should the focus be on certifying individual student achievement or on assessing institutional improvement?
- What are the cost implications of pursuing institution-specific, state-developed, or nationally norm-referenced test options?
- How should differences in the selectivity of institutions be accounted for in any assessment system to measure student achievement? How should we differentiate that which students have learned over a lifetime from that which they have learned since matriculation?
- What incentives will need to be in place for students to take the test seriously, so that the results have meaning?

These are significant questions that deserve careful consideration by faculty and measurement experts. However, they are obstacles to be overcome rather than *prima facie* evidence that measuring student learning in postsecondary education is impossible. The expertise exists among our talented faculty to make significant progress in this area. California's taxpayers deserve nothing less than our best efforts. We will not be alone in this undertaking. A survey of other states indicates that more than half of them have already undertaken similar efforts, partially to provide assurance of quality to state residents and employers (See Table 6, following).⁴² According to Peter Ewell, senior associate at the National Center for Higher Education Management Systems, "The problem for American higher education is not how we can build more sophisticated ways to determine from the outside what students are achieving. It is instead

⁴² State Higher Education Executive Officers, "Focus on Assessment of Student Learning," *Network News*, Volume 21, No. 1, (January 2002).

how we can establish (and assess against) high and explicit *internal* standards that are applied across institutions and that are, at the same time, credible to the outside world.”⁴³

Table 6

State Assessment of Student Learning Outcomes	
Activity	States (number)
Common statewide test; may be nationally-normed or state-developed	Arkansas, Florida, Georgia, South /Dakota, Tennessee, Texas (6)
State-mandated assessment; local choice of nationally-normed test	Missouri, Oklahoma (2)
In process of developing a common approach to outcomes assessment	Colorado, Connecticut, Kentucky, Massachusetts, New Mexico, Rhode Island, Utah, Virginia (8)
State-mandated assessment; locally developed or locally chosen instruments; reporting requirement in place	Hawaii, Iowa, Kansas, Louisiana, Maryland, Nevada, New York, North Carolina (8)
State-mandated assessment; locally developed or locally chosen instruments; no reporting requirement in place	Illinois, North Dakota, Oregon, Washington, Wisconsin (5)
No defined state requirement for assessing student learning outcomes	Alabama, Alaska, Arizona, California, Delaware, Idaho, Indiana, Maine, Michigan, Minnesota, Mississippi, Montana, Nebraska, New Hampshire, New Jersey, Ohio, Pennsylvania, South Carolina, Vermont, West Virginia, Wyoming (21)

We also observe that regional accrediting bodies recognized by the U.S. Department of Education are increasingly seeking ways to infuse evidence of student outcomes into their regular accreditation processes. To cite one example of this effort, the Western Association of Schools and Colleges (WASC), which accredits postsecondary education institutions in the region of the United States that includes California, focused on student learning outcomes in a January 2002 publication:

- [A]ssessment of student learning is a way to hold results up to intent.
- [A]ssessment provides a means for reporting to stakeholders, both internal and external, evidence of student learning that is at once understandable and usable in increasing institutional effectiveness.
- [The] role of the faculty as scholar[s] includes the doing of assessment as a means to find out what actively engages students in learning and what it is that can be done to make students seek and find meaning in what they are learning.

⁴³ See “Assessing Learning Outcomes” on the Measuring Up website at measuringup2000.highereducation.org/assessA.htm.

Course Alignment and Articulation

A coherent system of education requires a coherent curriculum, with courses that are aligned with each other and in which course content at one level provides the foundation skills needed for success at the next level within the same discipline. California should set its sights on ensuring course alignment throughout its education system, from preschool through postsecondary education, so that any student demonstrating mastery of course content offered by any education institution has the confidence that s/he is ready to successfully take on learning at the next level. Substantial steps have been taken to achieve this goal within public schools, with the adoption of common content standards. However, the initial curricular disjuncture occurs as some children progress from pre-school to kindergarten, when the guidelines and standards for those two levels are not aligned, resulting in disruption for the student. For other children, who do not participate in formal preschool, the disjuncture becomes evident shortly after they begin formal schooling, when inconsistency in the teaching quality among various teachers leaves some of them less prepared for success as they proceed on their education journey. Within K-12 education, there is still work to be done to ensure that all teachers are fully capable of teaching to the standards and have access to instructional materials that are aligned to them. In addition, the academic content in career technical courses at the high school level must be aligned with not only the content taught in more traditional academic courses, but also with the knowledge and skill sets desired by business and industry. This issue is an important one; course alignment is essential to assure maintenance of a comprehensive curriculum from which high school students can choose, but that does not foreclose any post-high school options.

Course alignment and articulation at the postsecondary education level remain problematic. No mandate exists for academic or technical content that should be taught to all students enrolled in postsecondary institutions. Faculty concurrence has been difficult to achieve on the comparability of courses taught at different institutions, even those intended to be transferable, in part because of differences in academic calendars and in part because of faculty commitment to the freedom to design courses in unique ways. Considerable improvement is needed in this area to ensure that students do not encounter avoidable problems that result in less, rather than more, efficient progress, as they elect to enroll in multiple institutions to achieve the educational goals they have set for themselves.

As a result of this non-concordance, a considerable amount of attention has been given to improvement and expansion of specific course articulation between individual pairs of community colleges and baccalaureate degree-granting institutions, resulting in literally *thousands* of such agreements. A number of initiatives have been expanded to facilitate transfer or to assist students in navigating their way through the various articulation agreements that exist. This committee considers that these several efforts do more to meet needs of education providers than they do to facilitate simplicity and ease of transfer for students. Our focus on students leads us to recommend that the following actions be taken to better align and articulate courses:

Recommendation 22

Membership of the Intersegmental Committee of the Academic Senates (ICAS) should be augmented with faculty from California's PreK-12 schools. The resulting new PreK-postsecondary intersegmental faculty body should be charged with reviewing and recommending changes, if needed, in the alignment and coordination of curricula, assessment, admissions, and placement.

The governing boards of the California Community Colleges (of both the statewide system and local districts), the California State University, and the University of California have delegated to their faculty many functions, including the determination and development of curriculum. ICAS is a voluntary organization consisting of representatives of the academic senates of the three systems of public postsecondary education in California. ICAS has responsibility for initiating academic programs and policies that are intersegmental in nature, with specific attention to transfer issues, articulation, general education requirements, and educational quality. California should take advantage of voluntary professional bodies such as ICAS to advance its vision of a cohesive, student-focused education system as a promising alternative to state-created entities with their attendant regulatory environment.

Recommendation 23

The Legislature should mandate the development of transparent and sustainable articulation and transfer processes to provide students with clear curricular guidance on the transition between grade levels, between high school and college, and between and among two- and four-year colleges and universities while avoiding the complexity of campus-by-campus differentiation.

Historically, PreK-postsecondary education institutions' collaboration has not been sufficient to result in fully aligned curriculum and academic content, admissions procedures, and expectations for students. One of the consequences is that many students who manage to graduate from high school, even those among the top third of graduates in the state, are not adequately prepared for postsecondary education. The high level of demand for remedial instruction in the California State University and the University of California serves as a graphic indicator of this misalignment in California. Most efforts in other states to develop alignment strategies have tried to pull together features of external systems, such as standards, assessment, curriculum, and teacher preparation.⁴⁴ In addition to these strategies, policies must ensure that different parts of the K-12 system – elementary schools, middle schools, and high schools – communicate more regularly with each other about educational goals and purposes.

⁴⁴ National Commission on the High School Senior Year, *The Lost Opportunity of Senior Year: Finding a Better Way*, (January 2001).

The same difficulty exists with respect to relationships between PreK-12 and postsecondary education systems. They operate independently of each other, each with its own governance and financing mechanisms, its own politics, goals, and objectives, and even institutional cultures. In California, where the admissions requirements of the California State University and University of California systems have a significant influence on high school course offerings, little opportunity is afforded for postsecondary faculty and PreK-12 teachers to collaborate on better alignment of their respective educational goals, curricula, and assessments. All levels of education must be connected to smooth students' transition through their educational experience and adulthood.

Within our postsecondary system, as noted previously, there is considerable activity underway to articulate courses between individual campuses of the California Community Colleges, the California State University, the University of California, and independent colleges and universities – efforts which seem more attentive to the needs of education providers than they are to the needs of students. The Legislature has previously called for statewide articulation of lower division undergraduate courses, to promote systemic flexibility to accommodate students' needs; but the response from public postsecondary institutions to date has been inadequate. Therefore, it is particularly appropriate that effective enforcement mechanisms be employed to ensure that this goal is met. Accordingly we offer the following additional recommendations:

Recommendation 23.1 – The California Department of Education should encourage and provide support for continuity of guidelines, standards, and curricula of state-supported preschools and kindergartens; it should strive for similar continuity with non-state-supported preschools.

Recommendation 23.2 – The governing boards of the University of California, California State University, and California Community Colleges systems, themselves or through the efforts of their faculty, should provide for the devising of system-wide articulation policies to enable students to transfer units freely between and among public colleges and universities in California. The attainment of this objective should be enforced by the proper application of accountability measures, as discussed on page 110-111 of this report.

Recommendation 23.3 – The University of California, California State University, and California Community College systems should establish an intersegmental group that includes faculty and students, to consider what steps need to be taken to establish a transfer associate's degree, within the existing associate degree unit requirements, the attainment of which would guarantee admission, and course transferability, to any California State University or University of California campus (though not necessarily the major of choice) for students successfully completing the transfer degree program.

Recommendation 24

The State should encourage explicit infusion of age-appropriate school-to-career experiences in public schools, colleges, and universities, to provide students with clear curricular and career guidance about the range of post-high school options to which they can aspire and to cultivate greater civic engagement among Californians.

Historically, collaboration among schools, colleges, and universities has been insufficient to ensure successful transition from formal education to employment. Although such collaboration has been stressed for high school students enrolled in vocational courses and for postsecondary education students enrolled in professional graduate programs, it has been less developed for students enrolled in traditional academic or liberal arts programs. High school graduates without specific career technical skills often find themselves in competition for low-wage jobs rather than career positions that place a monetary value on the cognitive skills they have acquired by the time of graduation. This reality reflects a low perception of what high school graduates know and can do, a higher valuation of the utility of specific career technical skills as distinguished from academic knowledge, a need for more highly developed cognitive skills than are commonly taught in high schools, or some combination of the foregoing. Regardless of the specifics of this reality, its persistence fails to recognize the value of an integrated instructional approach, which combines instruction in specific academic content with opportunities to apply that content in the context of public service, civic engagement, or various careers and professions. Qualified counselors and teachers should work together to identify and nurture relationships with community-based agencies, using experiential education to enhance academic achievement, to illustrate the practical utility of learning different academic content, and to stimulate greater student persistence.

With certain notable exceptions (such as engineering, business, and computer sciences), the prospects for college graduates are only marginally better than those for high school graduates, with many bachelor's degree recipients accepting positions that require little of the knowledge and skills they have acquired in college. Many students do not fully avail themselves of career planning and placement services maintained by most campuses until their last couple of semesters, when graduation is eminent and employment is perceived as a necessity. Consequently, they lack the range of experiences that would enable them to tailor their search to employers that value the knowledge and skills in which they have developed the greatest proficiency. Employers report that, even with college graduates, they frequently have to provide additional education and training to ensure that new employees are able to fully carry out the responsibilities of their positions. A sobering reflection of the disjuncture between what education institutions provide to students and what employers require is the fact that business-sponsored education programs are now a multi-billion dollar enterprise nationally, and much of their instruction is not industry-specific.

A common component of the school-to-career concept in high schools and professional programs in postsecondary education institutions is the importance attached to creating opportunities to benefit from workplace learning experiences. These opportunities include structured linkages

between businesses/professions, educators, community organizations, and other appropriate entities, which enable students to build relationships with professionals in the field and develop an understanding of how specific knowledge and skills are applied in a real-world context. The growing emphases on career academies in high schools, mentoring, and service learning throughout all education sectors reflect the value of these linkages. A systemic school-to-career strategy would address the current gaps in K-12 education and provide a more coherent continuum, addressing academic, applied, and workforce competencies through an integrated instructional approach. Instruction in specific academic content, with opportunities to apply that content in the context of public service, civic engagement, or various careers and professions, would require counselors and teachers to work together to identify and foster relationships with community-based agencies and the workplace. In application, the school-to-work concept envisions field trips to workplaces in the early to middle grades, job shadowing in the middle to high school grades, and internships at the high school and postsecondary education levels, to acquaint and engage students with the world of work. Rather than leaving such linkages to the initiative of individual teachers and institutions, California should encourage all education institutions to forge ongoing relationships and articulate both curriculum and teaching strategies with business and community organizations as an explicit expression of fulfilling their public service mission.

Teacher and Faculty Preparation and Professional Development

If the State of California is to fulfill its obligation to provide a high-quality education that enables students to prepare for entrance to and success in any public education institution, and successful transition to work, then more than simply placing a credentialed instructor in front of students will be required. Postsecondary faculty and PreK-12 leaders must agree on the content knowledge and specific competencies required of teachers and faculty at the junctures of critical student transitions in the educational continuum. We have affirmed our commitment to guarantee Californians access to qualified teachers and faculty as one of the essential components of a quality education. It must also be ensured that preparation of teachers includes developing an awareness of, and sensitivity to, the diversity of Californians, their varied learning styles, effective use of new and emerging technology, integrated approaches to instructional delivery, diagnostic and disability assessment, and other factors, such as expanded community partnerships to ensure achievement for all students. The following actions should be taken to ensure all teachers and faculty have the preparation and skills necessary to promote both access and success for all learners, including adult learners.

Recommendation 25

The State should support preparation of new teachers and ongoing professional development for all existing staff in technology applications, to ensure they have the skills to help students develop the technology skills and knowledge needed for lifelong achievement and success.

Evidence has shown that when students are actively engaged in self-driven learning projects, they learn more and remember it longer. Organizing and supervising such projects has become increasingly challenging, if not impossible, for teachers at all levels, as they struggle to manage large classes. Effective use of instructional technology can enhance the learning experience for some students and contribute to teacher efforts to transform the learning environment so that it is more student-centered, problem- and project-centered, collaborative, communicative, customized, and productive. It provides a tool that can enable teachers and faculty to support such activities far more efficiently than has been possible in the past. Software now allows students to change the parameters of an experiment in a virtual way – substantially enhancing an otherwise abstract and relatively impersonal class. Strategic use of technology simply can make learning far more interesting, even exciting, than what many students have encountered in their educational experience.⁴⁵

For the advantages of technology to be realized for all students, it will be necessary to ensure that all students have ready access to computers, software, and the Internet, regardless of the school, college, or university in which they happen to be enrolled. The Commission on Technology in Learning is developing a plan that will include specific recommendations for providing students and teachers access to technology. That plan should serve as a foundation for the recommendations contained in this Master Plan. It will also be necessary to consistently communicate the basic assumption that all students (and teachers) are capable of learning to use technology effectively, and that teachers are capable of developing a common language to communicate to each student that it is possible to get beyond any bar that has been set before him/her.⁴⁶ An additional advantage of technology is that it is non-judgmental; it does not communicate lowered expectations if a student fails to give a correct answer. It simply says, ‘go back, you made a mistake,’ and often encourages students to be even more focused the next time. This feature provides students with a built-in way to assess their own progress rather than being completely dependent on feedback from teachers – an effective way to engage them actively in their own learning. Technology can also provide significant benefits for special needs students, including those with physical and learning disabilities, those who are low-achieving, and those who are gifted.⁴⁷

It will not be enough to ensure that technology is available to students in schools throughout the state. Teachers must also have access to and be proficient in the use of the technology that is available to their students. The potential that technology holds for improving instruction, assessment, and learning cannot be realized if instructors do not know the range of available resources, how to use the technology to its fullest, or how to integrate it into the classroom to support teaching and learning. The benefits that teachers can realize by incorporating technology training in their professional development include:

- improved ability to meet student education expectations;
- improved professionalism;

⁴⁵ Frank Newman and Jamie Scurry, “Online Technology Pushes Pedagogy to the Forefront,” *The Chronicle of Higher Education*, (July 2001).

⁴⁶ Rudy Crew, “Rudy Crew: Being Present,” in *Converge Magazine*, (July 2001).

⁴⁷ The CEO Forum, IBID.

- improved instructional practices;
- increased communication and collaboration; and
- improved efficiency and constructive time spent on administrative tasks.

Summary

Providing all students with not only access to a public education but to also to the components of education that are most closely associated with quality is just the first step. It is also important that the State, its education providers, and parents monitor the progress of students to ensure that education resources are being used effectively to provide all students with a solid foundation for learning. The foregoing recommendations articulate the importance of being attentive to the achievement of students, how that achievement varies in relationship to the opportunities to learn that different students are provided, and how teachers and faculty can improve their ability to promote student success. The State has a responsibility for assessing the effectiveness of its education system, both to evaluate its overall effectiveness in helping students meet or exceed state learning expectations and to determine where additional capacity is required by education institutions. In addition, education providers must be engaged in the following activities:

- Assessment of physical, social, emotional, and cognitive development of young children by early childcare providers to identify learning disabilities and design appropriate responses early in a child's life.
- Continuous assessment of student learning by teachers and faculty to determine the extent to which students are mastering what is being taught and as a basis for referring students to appropriate learning support or accelerated learning opportunities, assessment for learning disabilities, or adaptation of instruction to better respond to the learning styles of students.
- Continuous dialogue between and among teachers and faculty to ensure that curricula are aligned throughout the education continuum and that successful student achievement at one educational level prepares students for success at the next education level.
- Aggressive efforts to blur the distinction between what have been historically known as vocational courses and those referred to as college preparatory, by ensuring that solid academic content is contained in vocational courses and that contextual application of knowledge is infused in college preparatory courses.
- Broadening the range of skills and knowledge expected of teachers and faculty, by supporting professional development activities and providing centralized information on new knowledge and practice that have a positive impact on student achievement.

Californians believe in quality education. Providing a qualified teacher in every classroom, safe and well-equipped schools, and up-to-date supplies and materials is of only marginal value if it does not contribute to student achievement. These resources must be used effectively to make a difference in the lives of students. Education providers should not wait for some state assessment to determine if students are being well served; they should be monitoring student achievement on a frequent, if not daily, basis. This Master Plan seeks to provide an impetus to statewide attention to the needs and achievement of students.